

Advanced Extravehicular Helmet Assembly, Phase I

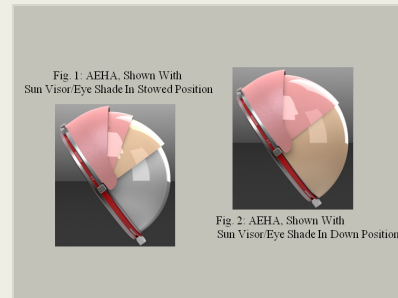
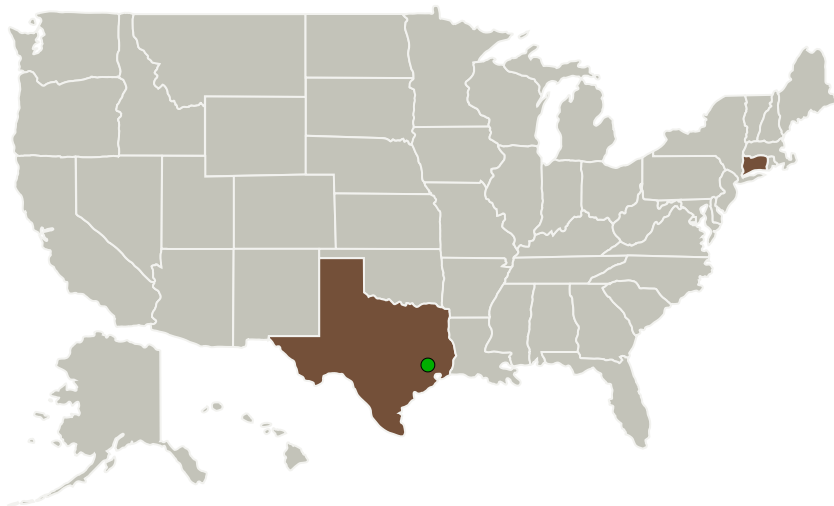
Completed Technology Project (2013 - 2013)



Project Introduction

The current NASA spacesuit community is focusing on utilizing a 13" hemispherical helmet for the next generation of extravehicular activity spacesuits. This helmet architecture presents the end user with a myriad of positive attributes, including a large field of view, enhanced CO₂ washout and improved component durability/operational life. The 13" Dome Helmet architecture has proven these attributes via the NASA MK-III and Z-1 advanced EVA spacesuit test beds. Air-Lock's 2012 SBIR proposal advances the 13" Dome Helmet from NASA prototype/test bed to EVA Acceptability for Use by enhancing the design with a fully functional Extravehicular Visor Assembly (EVVA). Phase I will see Air-Lock engineers leverage current Helmet/EVVA technologies, infuse the design with lessons learned from the EMU Program and implement the resultant design into a 13" hemispherical helmet architecture; heretofore referred to as the Advanced Extravehicular Helmet Assembly (AEHA). In addition to the design facet of the Phase I task, Air-Lock engineers will develop a Verification and Validation Test Plan (V&V) based on current EMU S/AD and CARD requirements along with higher Advanced EVA operating pressures (8.0 psi). This test plan will lay the foundation for Phase 2 Acceptability for Use testing to facilitate the use of the AEHA aboard the International Space Station in support of NASA's planned 2017 ISS Advanced Spacesuit Demonstration Test.

Primary U.S. Work Locations and Key Partners



Advanced Extravehicular Helmet Assembly

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Organizations Performing Work	Role	Type	Location
Air-Lock, Inc.	Lead Organization	Industry	Milford, Connecticut
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations	
Connecticut	Texas

Project Transitions

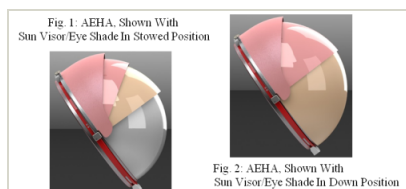
▶ **May 2013:** Project Start

✓ **November 2013:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137959>)

Images



Project Image

Advanced Extravehicular Helmet Assembly
(<https://techport.nasa.gov/image/132085>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Air-Lock, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

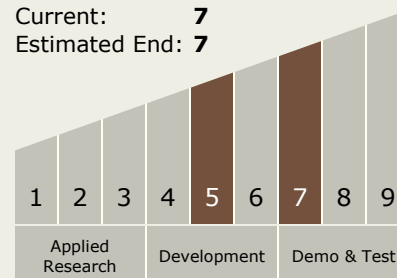
Carlos Torrez

Principal Investigator:

Brian Battisti

Technology Maturity (TRL)

Start: 5
Current: 7
Estimated End: 7



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.2 Extravehicular Activity Systems
 - └ TX06.2.1 Pressure Garment

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System